

Kansas State Fire Marshal – Fire Prevention Division

References (s): K.S.A. 31-133; 31-144

Page 1 of 1



FIRE FACT 013 – STRUCTURAL INTEGRITY

Structural Integrity

Lack of structural soundness in any building can be deemed a dangerous condition which may slow or impede speedy evacuation.

In structures other than schools, the guidelines for the Kansas State Fire Marshal's Office are set forth in the general provisions of K.S.A. 31-133 relating to the construction and maintenance of exits. This is in addition to the nationally recognized codes adopted by Kansas Regulation as standards of reference. Specifically regarding schools, K.S.A. 31-144 specifies any dangerous condition in schools will be identified and corrected.

Problem

Over the past several years, buildings with exterior masonry load bearing walls in Kansas have been identified as deteriorating. Date of original construction is not a single true indicator of the structural integrity of the building; each building must be viewed individually. It has been the practice of the Kansas State Fire Marshal to walk fully around a building looking at the condition of exterior walls and roofs. Specifically, our inspectors look for large cracks in the structure or mortar, spalling mortar and building materials, or lines that are not plumb indicating significant deflection or settlement. This includes window lintels. Walking around the building and reviewing wall, window and door conditions gives inspectors a chance to view potential problems. It is difficult to determine whether interior cracks are mere flaws or poor finishes without viewing exterior conditions.

When significant deterioration in outward conditions is identified, it is normal procedure for our office to require a written report from a Kansas licensed structural engineer to indicate if the building is safe to remain occupied and for how long. Typically, if the structural engineer indicates certain repair work is required to keep the building or portion sound, the work must be completed, or the building abandoned, or a second opinion from another Kansas licensed structural engineer which reverses the original findings. Most structural evaluations are conservative, since it is better to vacate a building prior to any structural failure. It is not acceptable to allow an occupied building which has been identified by a licensed Kansas engineer as unsound to further deteriorate without positive corrective actions by the owner operator. The findings from a structural report may not resolve the concern.

Since 1992 a number of school related structures have been found to be unsound and/or unsafe to continue in use without abatement of deterioration of some portion of the structure. Another large group of schools have yet to be identified as structurally unsound. However, the Kansas State Fire Marshal staff is better equipped to see and understand the indicators previously listed. The continued use of any unsound school building has not been conditioned solely upon the passage of a bond issue.